

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paul A. Farrar

Serial No.: Not Yet Assigned

Filed: February 27, 2004

For: SURFACE BARRIERS FOR COPPER
AND SILVER INTERCONNECTS
PRODUCED BY A DAMASCENE
PROCESS

Confirmation No.: Unknown

Examiner: Unknown

Group Art Unit: Unknown

Attorney Docket No.: 2269-5570.1US
(02-1122.01/US)

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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The present application is a divisional of application Serial No. 10/414,147, filed April 15, 2003, pending.

Pursuant to M.P.E.P. 2001.06(b), the Examiner is respectfully requested to consider the information of record in the prior application, and to confirm in the first Office Action on the merits that such art has in fact been reviewed. A PTO-1449 form listing all of the information of record in the prior application is enclosed herewith.

U.S. Patent Documents

<u>U.S. Patent No.</u>	<u>Publication Date</u>	<u>Patentee</u>
US - 2,842,438	07/1958	Saarivirta et al.
US - 5,130,274	07/1992	Harper et al.
US - 6,077,792	06/2000	Farrar
US- 6,307,266 B1	10/23/2001	Yung
US- 6,352,917 B1	3/5/2002	Gupta et al.
US - 6,376,370	04/2002	Farrar
US - 6,420,262	7/2002	Farrar
US - 6,426,289	7/2002	Farrar

Other Documents

ANDRICACOS, Panos C., "Copper On-Chip Interconnections", The Electrochemical Society Interface, Spring 1999, pp. 32-37, Vol. 8, No. 1.

BRAUD et al., "Ultra Thin Diffusion Barriers for Cu Interconnections at the Gigabit Generation and Beyond", VMIC Conference, June 1996, pp. 174-179, 1996 ISMIC - 106/96/0174(c).

de FELIPE et al., "Electrical Stability and Microstructural Evolution in Thin Films of High Conductivity Copper Allows", IEEE, 1999, ITC 99/293-295.

DING et al., "Copper Barrier, Seed Layer and Planarization Technologies", VMIC Conference, June 1997, pp. 87-92, 1997 ISMIC - 107/97/0087(c).

GODBEY et al., "Copper Diffusion in Organic Polymer Resists and Inter-Level Dielectrics", Thin Solid Films, 31 Oct. 1997, pp. 470-474, Vols. 308-309.

IJIMA et al. "Structure and Electrical Properties of Amorphous W-Si-N Barrier Layer for Cu Interconnections", VMIC Conference, June 1996, pp. 168-173, 1996 ISMIC - 106/96/0168(c).

"International Conference on Metallurgical Coatings and Thin Films", Program and Abstracts, April 1997, pp. 309, 313.

"Improved Metallurgy for Wiring Very Large Scale Integrated Circuits", International Technology Disclosures, 25 Sept. 1986, 1 page, Vol. 4, No. 9.

LYMAN et al., "Metallography, Structures and Phase Diagrams", Metals Handbook, 8th Edition, date unknown, pp. 300-302, Vol. 8, Metals Park, Ohio.

MARCADAL et al., "OMCVD Copper Process for Dual Damascene Metallization", VMIC Conference, June 1997, pp. 93-98, 1997 ISMIC - 107/97/0093(c).

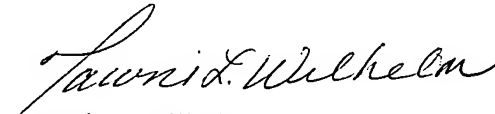
MURARKA et al., "Copper Interconnection Schemes: Elimination of the Need of Diffusion Barrier/Adhesion Propoter by the Use of Corrosion Resistant, Low Resistivity Doped Copper", SPIE, Jan 1994, ppg. 80-90, Vol. 2335.

RYU et al., "Barriers for Copper Interconnections", Solid State Technology, April 1999, pp. 1-6, Vol. 42, Issue 4, p53.

SAARIVIRTA, Matti J., "High Conductivity Copper-Rich Cu-Zr Alloys", Transactions of the Metallurgical Society of AIME, June 1960, pp. 431-437, Vol. 218, New York, NY.

This Information Disclosure Statement is filed within three (3) months of the filing date of the above-identified application, and no certification pursuant to 37 C.F.R. § 1.97(c) or a fee pursuant to 37 C.F.R. 1.17(p) is required.

Respectfully submitted,



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Date: February 27, 2004
TLW/nj:rh

Enclosures: Form PTO-1449 or PTO/SB/08

Document in ProLaw

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				<i>Complete if Known</i>	
				Application Number	Not Yet Assigned
				Filing Date	February 27, 2004
				First Named Inventor	Paul A. Farrar
				Group Art Unit	unknown
				Examiner Name	unknown
				Attorney Docket Number	2269-5570.IUS (02-1122.01/US)
Sheet	1	of	2		

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Examiner Signature		Date Considered	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet

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of

2

Complete if Known

Application Number	Not Yet Assigned
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Examiner Name	unknown
Attorney Docket Number	2269-5570 IUS (02-1122 01/IUS)

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		ANDRICACOS, Panos C., "Copper On-Chip Interconnections", The Electrochemical Society Interface, Spring 1999, pp. 32-37, Vol. 8, No. 1.	
		BRAUD et al., "Ultra Thin Diffusion Barriers for Cu Interconnections at the Gigabit Generation and Beyond", VMIC Conference, June 1996, pp. 174-179, 1996 ISMIC - 106/96/0174(c).	
		de FELIPE et al., "Electrical Stability and Microstructural Evolution in Thin Films of High Conductivity Copper Allows", IEEE, 1999, IITC 99/293-295.	
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		IJIMA et al. "Structure and Electrical Properties of Amorphous W-Si-N Barrier Layer for Cu Interconnections", VMIC Conference, June 1996, pp. 168-173, 1996 ISMIC - 106/96/0168(c).	
		"International Conference on Metallurgical Coatings and Thin Films", Program and Abstracts, April 1997, pp. 309, 313.	
		"Improved Metallurgy for Wiring Very Large Scale Integrated Circuits", International Technology Disclosures, 25 Sept. 1986, 1 page, Vol. 4, No. 9.	
		LYMAN et al., "Metallography, Structures and Phase Diagrams", Metals Handbook, 8 th Edition, date unknown, pp. 300-302, Vol. 8, Metals Park, Ohio.	
		MARCADAL et al., "OMCVD Copper Process for Dual Damascene Metallization", VMIC Conference, June 1997, pp. 93-98, 1997 ISMIC - 107/97/0093(c).	
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